What is Claimed is:

1. An apparatus for recovering a carrier comprising:

a signal converter outputting baseband I, Q signals by multiplying digitized

5   passband I, Q signals by a complex carrier according to a phase error;

first and second filters removing data components of the baseband I, Q signals;

a divider dividing a signal outputted from the second filter by a signal outputted

from the first filter;

a multiplier multiplying a signal outputted from the divider by the baseband I signal

10   delayed for a predetermined time period; and

an oscillator generating a complex carrier according to a signal outputted from the

multiplier.

2. The apparatus of claim 1, wherein the divider divides a pilot component of the

15   baseband Q signal by a pilot component of the baseband I signal.

3. The apparatus of claim 1, further comprising a gain multiplier multiplying the

signal outputted from the divider by a gain according to the delayed baseband I signal.

20   4. The apparatus of claim 1, further comprising:

a delay delaying the signal outputted from the first filter for a predetermined time

period; and

a sign extractor extracting a sign of the signal outputted from the delay, and

providing the extracted sign to the multiplier.

5. A method for recovering a carrier comprising:

(a) converting digitized passband I, Q signals to baseband I, Q signals;

(b) removing data components from the baseband I, Q signals;

(c) dividing the baseband Q signal having the data component removed therefrom by the baseband I signal having the data component removed therefrom;

(d) delaying the baseband I signal having the data component removed therefrom for a predetermined time period, and multiplying the delayed baseband I signal by the division result; and

(e) generating a complex carrier according to the multiplication result.

6. The method of claim 5, further comprising a step of multiplying the division result by a constant gain according to the delayed baseband I signal, after delaying the baseband I signal.

7. An apparatus for recovering a carrier comprising:

a signal converter outputting baseband I, Q signals by multiplying digitized passband I, Q signals by a complex carrier according to a phase error;

first and second filters transmitting pilot components of the baseband I, Q signals;

a divider dividing the pilot component of the baseband Q signal by the pilot component of the baseband I signal;

a delay delaying the pilot component of the baseband I signal for a predetermined time period;

a gain multiplier multiplying a signal outputted from the divider by a constant gain

according to a signal outputted from the delay;

a multiplier multiplying a signal outputted from the gain multiplier by the signal outputted from the delay; and

an oscillator generating a complex carrier according to a signal outputted from the multiplier.

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8. The apparatus of claim 7, further comprising a sign extractor extracting a sign from the pilot component of the baseband I signal outputted from the delay, and providing the extracted sign to the multiplier.

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9. A method for recovering a carrier comprising:

(a) outputting baseband I, Q signals by multiplying digitized passband I, Q signals by a complex carrier according to a phase error;

(b) filtering the baseband I, Q signals to transmit pilot components thereof;

15 (c) dividing the pilot component of the baseband Q signal by the pilot component of the baseband I signal;

(d) delaying the pilot component of the baseband I signal for a predetermined time period, and multiplying the division result by a constant gain according to the pilot component of the delayed baseband I signal; and

20 (e) generating a complex carrier according to the multiplication result.

10. The method of claim 9, further comprising:

extracting a sign from the pilot component of the delayed baseband I signal;

calculating a phase error by multiplying the multiplication result by the extracted

sign; and

generating a complex carrier proportional to the phase error.

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